In the Claims:

1. (Currently amended) A method for detecting total end-to-end loss of data packets in a packet network, comprising the steps of:

generating a test signal at a source end point coupled to the packet network, the test signal having a predefined pattern of variation in average power level;

transmitting the test signal ~~over the packet network~~ to a destination end point ~~coupled to the packet network~~ in a plurality of packets having mutually variable sizes;

~~recording~~ receiving the modified test signal at the destination end point;

~~examining~~ comparing the modified test signal pattern to an estimated test signal pattern, the estimated pattern determined by a predefined algorithm ~~detect irregularities using the predefined pattern of variation as a standard~~; and

determining whether the irregularities between the modified test signal and the estimated test signal ~~in the recorded signal~~ represent packet loss.

2. (Original) The method of claim 1, wherein the test signal includes repeating sections, the sections further including a number of segments, the length of each segment equal to the smallest packet size in the packet network.

3. (Original) The method of claim 2, wherein the lengths of the repeating sections are greater than the largest packet size in the packet network.

4. (Original) The method of claim 3, wherein the average power level of each segment is detectably different from average power levels of each of the other segments in a given section.

5. (Currently amended) The method of claim 4, wherein the segment length is set to optimize ~~optmize~~ an amount of data bits included in a packet taking into account in-network delay, and the section length is equal to four times the segment length.

6. (Currently amended) ~~The~~ A method ~~of claim 4, further~~ for detecting total end-to-end loss of data packets in a packet network, comprising the steps of:

generating a test signal at a source end point coupled to the packet network, the test signal having a predefined pattern of variation in average power level;

transmitting the test signal over the packet network to a destination end point coupled to the packet network;

recording the modified test signal at the destination end point;

examining the modified test signal to detect irregularities using the predefined pattern of variation as a standard;

determining whether the irregularities in the recorded signal represent packet loss;

calculating an expected power level for each segment in the repeating sections of the test signal; and

comparing a difference between the power level of a segment and its expected power level against a threshold;

wherein the test signal includes repeating sections, the sections further including a number of segments, the length of each segment equal to the smallest packet size in the packet network;

wherein the lengths of the repeating sections are greater than the largest packet size in the packet network;

wherein the average power level of each segment is detectably different from average power levels of each of the other segments in a given section;

wherein the segment length is set to optimize an amount of data bits included in a packet taking into account in-network delay, and the section length is equal to four times the segment length;

wherein if the difference is greater than the threshold, packet loss is detected.

7. (Original) The method of claim 6, wherein the source end point and the destination end points are end points of a telephone network, and the telephone network is coupled to the packet network through gateway nodes.

8. (Original) The method of claim 7, wherein the test signal is one of a 1004 Hz tone signal and a composite source signal.

9. (Original) The method of claim 7, further comprising:

encoding the test signal before transmission to the destination end point using a voice codec.

10. (Original) The method of claim 9, wherein the codec is G.711.

11. (Original) The method of claim 6, further comprising:

determining whether burst packet loss has altered the alignment of the recorded signal; and

realigning the recorded signal to correct for any alteration.

12. (Original) The method of claim 6, further comprising:

generating a small sample of the original signal at the destination end point according to a shared algorithm;

correlating the recorded signal with the sample to calculate a delay; and

compensating the recorded signal for the calculated delay.

13. (Original) The method of claim 6, wherein the step of calculating the expected power level of a segment includes:

selecting a sample of repeating sections from a recorded signal;

classifying segments within a section in groups with corresponding segments from the remaining selected sections; and

determining the median values for each group, the median value being identified as the expected power level for the segment group.

14. (Currently amended) A device for generating a test signal used for detecting total end to end loss of data packets in a packet network, comprising:

a signal generator configured to generate a test signal, the test signal including repeating sections of varying size, the sections further including a number of segments, the length of each segment equal to the smallest packet size in the packet network; and

a transmitter adapted to be coupled to a packet network.

15. (Original) The device of claim 14, wherein the lengths of the repeating sections are greater than the largest packet size.

16. (Original) The device of claim 15, wherein the average power level of each segment is detectably different from average power levels of each of the other segments in a given section.

17. (Original) The device of claim 16, wherein the segment lengths of the generated test signals are equal to a permissible in-network delay, and the section lengths are four times the segment lengths.

18. (Original) A device for detecting total end-to-end loss of data packets in a packet network, comprising:

a signal receiver;

a recording unit for recording test signals received by the receiver, the test signals having a predefined pattern of variation in average power level; and

a processor configured to:

analyze the recorded test signal to detect irregularities using the predefined pattern of variation as a standard;

determine if packet loss occurred during transmission of the signal through the packet network; and

report test signal packet loss statistics.

19. (Currently amended) The device of claim 18, wherein the processor is further configured to:

receive a test signal made of repeating sections, the sections further including a number of segments;

calculate an expected power level for each segment in repeating sections of the received test signal; and

compare differences between power levels of segments and their respective expected power levels against a threshold; and

wherein if the difference is greater than the threshold, packet loss is detected.

20. (Original) The device of claim 19, wherein the processor is further configured to:

determine whether burst packet loss has altered the alignment of the recorded signal; and

realign the recorded signal to correct for any alteration.

21. (New) A method of detecting packet loss in a packet network, comprising:

generating a test signal having a predetermined, repetitive pattern;

assigning portions of the test signal to a plurality of packets, each packet having a variable size wherein within at least one cycle of the test signal, average power of each packetized portion of the test signal differs among the packets;

transmitting the packets to a destination end point in the packet network;

generating a modified test signal at the destination end point from received packets; and

comparing the modified test signal pattern to an estimated test signal pattern.

22. (New) The method of claim 21, wherein the estimated pattern is determined by a predefined algorithm shared with the source signal generators.